SEPARATING AUDIO STEMS WITH DEMUCS

How to Separate Audio Stems with Demucs

This guide will walk you through installing and using Demucs, a powerful tool for separating audio into its constituent stems (vocals, drums, bass, other).

1. Installation

Demucs requires Python and `pip`. It also relies on PyTorch. The easiest way to install Demucs and its dependencies is via `pip`:

```
pip install demucs
```

If you have a GPU and want to utilize it for faster processing, ensure you have the correct PyTorch version installed with GPU support *before* installing Demucs. Refer to the PyTorch website for installation instructions specific to your system and GPU.

2. Basic Usage

Once installed, you can use Demucs from your terminal. The basic command to separate stems from an audio file is:

```
demucs "path/to/your/audio.mp3"
```

Replace `"path/to/your/audio.mp3"` with the actual path to your audio file. Demucs supports various audio formats like `.mp3`, `.wav`, `.flac`, etc.

By default, Demucs will create a new directory named `separated` in your current working directory. Inside `separated`, it will create a subdirectory for each processed song (e.g., `separated/your_audio_name/`). Within this song-specific directory, you will find the separated stem files (e.g., `vocals.wav`, `drums.wav`, `bass.wav`, `other.wav`).

3. Handling File Paths with Spaces

Just like with other command-line tools, if your audio file path contains spaces, you must enclose the entire path in double quotes (`"`) or escape each space with a backslash (`\`).

Using Quotes (Recommended):

```
demucs "path/with a space/to/your/song.wav"
```

Using Backslashes:

```
demucs path/with\ a\ space/to/your/song.wav
```

4. Choosing a Model (for Better Vocal Isolation)

Demucs comes with several pre-trained models. The default model (`htdemucs`) is generally good, but for better vocal isolation, the `htdemucs_mmi` model is often recommended.

To specify a model, use the `-n` or `--name` flag:

```
demucs -n htdemucs_mmi "path/to/your/audio.mp3"
```

5. Specifying an Output Directory

To control where the separated stems are saved, use the `-o` or `--output` flag:

```
demucs -o "/path/to/your/output/folder/" "path/to/your/audio.mp3"
```

This will create the `separated` directory (and the song-specific subdirectory within it) inside the specified output folder.

Putting It All Together: Extracting Isolated Vocals

Here's a complete example command to separate vocals from an audio file using the `htdemucs_mmi` model and save the output to a specific directory, handling spaces in paths:

```
demucs -n htdemucs_mmi -o "/home/user/Music/Processed_Audio/"
"/home/user/Music/Original_Songs/My Song with Spaces.mp3"
```

After running this command, you would find the isolated vocals at a path similar to:

`/home/user/Music/Processed_Audio/htdemucs_mmi/My Song with Spaces/vocals.wav`

This guide should help you effectively use Demucs for your audio stem separation needs.